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## CLAIMS

1. Fluid bed (F1) granulation process of a predetermined substance, comprising the cooling of the granules obtained in a second fluid bed (F2), characterized in that it uses a same flow of fluidification air to form and support continuously and in the order said cooling (F2) and, respectively, granulation (F1) fluid beds, substantially arranged in series with respect to said flow.
2. Process according to claim 1, characterized in that the finished granules of said substance are transferred substantially in cascade from said granulation bed to said cooling bed.
3. Apparatus for carrying out the fluid bed granulation process according to claim 1, comprising a self-supporting structure substantially shaped like a container (2), defining a granulation space (A) inside of it, in which a shelf (14) is positioned, intended to support a granulation fluid bed (F1), characterized in that it comprises, in said space (A), a base plate (4), positioned below and in a predetermined spaced relationship from said shelf (14), said base plate (4) being intended to support a respective cooling fluid bed (F2) of hot finished granules coming from said granulation bed (F1), said cooling bed (F2) being in fluid communication with said granulation bed (F1) through said shelf (14), provided perforated, grated or in any case permeable to gas flows, a downcomer (16), extending vertically in said space (A), suitable for the transfer of finished granules from said granulation fluid bed (F1) to said cooling fluid bed (F2) at said base plate (4), means for feeding and distributing (22, 19) fluidification air in said space (A) below said base plate (4), to form and

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maintain said cooling bed (F2) and said granulation bed (F1), which are arranged in series with respect to said flow.

4. Apparatus according to claim 3, characterized in that  
5 said downcomer (16) comprises a vertical panel (15),  
supported in said space (A) in a predetermined spaced  
relationship from a wall (8) of said container structure  
(2), defining with it an interspace (16), said panel (15)  
having a horizontal bottom side spaced from said base plate  
10 (4), so as to define with it a passage (25), suitable for  
putting said interspace (16) in communication with the  
space (A) above the aforementioned base plate (4).

5. Apparatus according to claim 4, characterized in that  
said interspace (16) is in communication at the top with  
15 said space (A), through an opening (11) provided in it.

6. Apparatus according to claim 3, characterized in that  
said cooling fluid bed (F2) is in communication with the  
outside through a pocket (18) between a wall (7) of said  
container structure (2) and a front panel (17) fixed to the  
20 base plate (4) supporting the cooling bed (F2) and  
preferably parallel to said top wall (7).

7. Apparatus according to claim 6, characterized in that  
said front panel 17 comprises a mobile bulkhead (21), able  
to slide vertically and adjustable in height.